

indicated by S1 and S2 in FIG. 8. The longitudinal knives in the example shown are formed as U-shaped bent strips having legs of unequal length. The U-shaped strips are in each case slid into the openings in the transverse knives from the two ends of a cutting frame, with the legs of the U-shape ending up in successive openings. The bent part of the U-shapes is indicated in FIG. 6 by 42. The bent part 42 can have various shapes, taking the form of, for instance, a round bend, a pointed bend, or a fairly right-angled bend, as schematically shown in FIG. 12 at 42, 42', 42". Further, in each case, a long leg of a U-shaped longitudinal knife inserted from one side comes to lie in line with a short leg of a U-shaped longitudinal knife inserted from the other side. The long legs of the U-shaped longitudinal knives then overlap in an overlap area 43, which, when the longitudinal knives are substantially identically shaped, is located halfway the length of a cutting frame. Referring to FIG. 9, in the long legs, adjacent the free ends and in the overlap area, openings 44 are provided, which are in register with each other and with corresponding openings 45 in the frame girders. Inserted through these registered openings is a pin 46, whose ends 47 have subsequently been bent over so that the pin cannot slip from the cutting frame anymore. One of the ends may have been bent over beforehand. The diameter of the openings in the longitudinal knives and the frame girders is greater than the cross section of the pin 46, thereby preventing the possibility of material adhering in and around the openings. The openings in the frame girders are preferably designed to flare on both sides, as shown at 48, because the frame girders are relatively thick. In this way, narrow gaps between the pin and the frame girders are avoided. Optionally, this technique can also be followed for the openings in the longitudinal knives, but in view of the minor thickness of the longitudinal knives, this is normally not necessary.

The above-described construction of a cutting frame enables a relatively simple assembly of the cutting frame with relatively little welding work. Also, by virtue of the nature of the construction with the longitudinal knives mounted in the cutting frame with relatively large play, caking of dirt at the intersections of the longitudinal and transverse knives and adjacent the fixing pin 46 can be effectively prevented.

It is noted that after the foregoing, various modifications will readily occur to those skilled in the art. Thus, as already noted, it is possible to use, at will, single relatively broad transverse knives with an opening therein for the longitudinal knives or pairs of two transverse knives located above each other with recesses located opposite each other. It is also possible to use long U-shaped knives extending substantially throughout the length of a cutting frame, which are optionally fitted in alternation from one end of the cutting frame and from the other end. Further, instead of longitudinal knives bent into a U-shape, straight longitudinal knives having the same length as the cutting frame can be used. It is also possible to use shorter knives which can overlap to allow them to be fixed with a single fixing pin. Alternatively, more than one fixing pin, for instance two, can be used. This also holds if the U-shaped bent longitudinal knives are designed with legs of equal length. Furthermore, when U-shaped longitudinal knives are used, it is, of course, possible to make the legs as long as the cutting frame. Then a single fixing pin will suffice again.

The fixing pin shown in the figures has two bent ends, which means that at least one end has to be bent over after the pin has been placed. Alternatively, other fixing methods are conceivable, such as, for instance, welding the pin to one

or both frame girders, or the use of a pin consisting of two parts, which parts, after being arranged at an appropriate position between the frame girders, are attached to each other by screws or welds or the like.

Further, the longitudinal knives can be provided with recesses instead of openings, which recesses receive, with play, a fixing pin which prevents the longitudinal knives from shifting in their longitudinal direction. Instead of a fixing pin inserted through openings, a special transverse knife or transverse element may then be used, which extends in the recesses and which, after positioning of the longitudinal knives, is welded to the frame girders of the cutting frame. Such a fixing method is schematically shown in FIGS. 14 and 15. A transverse element 53 reaches in the recesses 54 on the lower side (or upper side) of a number of longitudinal knives 38 and is mounted by its ends to the frame girders 30, 31 of the cutting frame, in this example by welding, as designated at 55.

According to another alternative, the longitudinal knives can be connected at one of their ends to a transverse knife or a special transverse element by welding. FIG. 16 and FIG. 17 show such a fixing method, in this example used for U-shaped bent longitudinal knives of a length substantially corresponding to that of the cutting frame and with legs which are not equally long. This fixing method, however, can also be used for shorter longitudinal knives and/or non U-shaped bent longitudinal knives and/or U-shaped bent longitudinal knives with legs of equal length, while depending on the selected configuration one or both legs of a U-shaped longitudinal knife can be fixed by welding.

FIG. 16 shows in top plan view a part of a cutting frame with a U-shaped bent longitudinal knife 38 with unequal legs. The end of the shorter leg is connected at 56 by welding to the last transverse knife 32 or to a transverse element especially arranged for that purpose. The other leg in this example reaches through an opening in the transverse knife, indicated by an arrow 57. The opening can be formed in any one of the manners already described hereinbefore. As can be seen in the side elevation of FIG. 17, in this example the transverse knife 32 is a bent transverse knife, to enhance stiffness.

The free end 58 of the long leg of the longitudinal knife that reaches beyond the transverse knife or transverse element can, if desired, be bent over or be provided with a transverse section, as shown in FIG. 18 by way of example at a, b, c and d.

These and similar modifications will readily occur to those skilled in the art.

What is claimed is:

1. An apparatus for cutting and stirring curd, comprising a curd vat with a shaft drivable for rotation, which shaft carries a number of cutting frames extending radially from the shaft and arranged on the shaft in staggered relation, each cutting frame having two frame girders, which extend radially from the drivable shaft and between which a lattice work is situated formed from longitudinal knives and transverse knives, the transverse knives being mounted on the frame girders by welding wherein the transverse knives have openings which are in line, in which the longitudinal knives are received, while means are provided for substantially preventing displacement of the longitudinal knives in the longitudinal direction and wherein at least a number of said opening are of essentially circular or oval shape.

2. An apparatus as claimed in claim 1, wherein at least a number of said openings are of diamond shape.

3. An apparatus as claimed in claim 1, wherein at least a number of transverse knives, viewed in cross-section have a bent shape.

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4. An apparatus as claimed in claim 1, wherein the means for preventing displacement of the longitudinal knives comprise a transverse knife which is secured to both frame girders and which is connected to the longitudinal knives through welding.

5. An apparatus as claimed in claim 4, wherein said transverse knife has a bent shape in cross-section.

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6. An apparatus as claimed in claim 1, wherein the longitudinal knives include a number of U-shapes bent strip like knives, the legs of said U-shaped knives being inserted in adjacent openings of the transverse knives.

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